

May 30, 2003

ORIGINAL

Office of the Secretary  
Federal Communications Commission  
445 12th St., S.W., Room TW-A325  
Washington, D.C. 20554

EX PARTE OR LATE FILED

RE: Comment related to:

WT Docket No. 01-309, NPRM Related to Reexamination of Exemption  
Granted Personal Communications Services devices from the Hearing Aid  
Compatibility Act of 1988

Dear Commissioner:

Myers Johnson Inc. (MJI) files this submission in May to recognize Better Hearing Month and provide further insight in support of resolution for the hearing aid compatibility (HAC) issue. MJI believes that resolution to the HAC issue can be achieved under a limited revocation of the exemption given to cellular radio telecommunications service (mobile phones) providers. Various mobile phone manufacturers have already publicly demonstrated that complying with the requirements of the HAC Act is technologically feasible and readily achievable. In addition, the hearing aid industry has announced on several occasions that improvements in immunity can, and has been, achieved in certain hearing aids, thus demonstrating that immunity from radio frequency (RF) and electromagnetic (EM) interference is technologically feasible. However, without amending and limiting the exemption, the rate of progress towards compliance will remain unacceptably slow (taking several years), based on current technology and available support from suppliers.

MJI believes that the exemption should be lifted under the limited condition that each provider of mobile phones voluntarily selects at least one handset that can immediately be made to meet basic requirements of the HAC Act, based on existing, available technologies. MJI believes that mobile phone manufacturers are very willing to support the HAC issue and are likely to have advanced knowledge on this subject. MJI estimates that the technical, financial and distribution issues could be resolved within twelve months following a limited exemption revocation requiring such a selection. By revoking the existing full exemption on favor of a limited exemption, the Commission will speed progress for meeting HAC Act requirements by improving the dissemination of knowledge toward resolution. In this way, the four statutory requirements of the HAC Act can be met. After an effective implementation is met, real world data can be achieved to improve the standards for further improvements.

The present status of the issue is evidenced in the statements coming from the various interested parties:

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1. Self Help for Hard of Hearing People (SHHH) sent comments concerning the Analysis of inductive coupling and interference issues in Digital Wireless phones: Technically Feasible Solutions. SHHH discussed the reasons for inductive telecoil coupling, the importance of a strong inductive field in the telephone. SHHH also provided an in depth non-technical analysis of the interference issues and the reasons the exemptions for wireless telephones should be removed. [Brenda Battat, Director of Public Policy and State Development HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658 January 9<sup>th</sup>, 2003]

MJI supports the statements made by SHHH. On Wednesday, May 21, 2003, a prototype of the Vortis antenna (MJI's proposed solution), was demonstrated as effective in mitigating RF interference. Given the proper handset, MJI will demonstrate this concept and earlier test data.

It should be noted that SHHH sent comments to the FCC in support of MJI's petition for revision of FCC part 24.232. SHHH pointed out that recent efforts to immunize hearing aids have not been retroactive to units sold in the market, and that upgrades would cost between \$1000 and \$3000 and more for cochlear implant processors. SHHH also stated that directional antennas could be a significant method for reducing RF emissions to such hearing aids. SHHH pointed out that other means of interference, such as magnetic interference in the phone's pulsing battery currents can cause interference in the T-Coil mode. [Brenda Battat, Director of Public Policy and State Development HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

2. The Cellular Telecommunications & Internet Association (CTIA) claims that the hearing aid compatibility of some cellular telephones is merely anecdotal. The CTIA claims to have shown empirical data and extensive technical analyses that clearly demonstrate it is not technically feasible to simultaneously provide hearing aid compatibility through internal coupling, which requires creation of an electromagnetic field, and a low level of RF interference between a digital cellular phone and hearing aids. CTIA claims that such evidence does not warrant revoking or limiting the statutory exemption for all digital wireless phones. [Michael F. Altschul, Cellular Telecommunications & Internet Association February 11, 2002, HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

MJI supports these statements from the CTIA, and has quantified at least nine variables in the hearing aid and at least six variables in the cellular phone, as well the relationship of these variables, that are key to compatibility. There are many various permutation of these variables affecting compatibility. This is why the primary focus of attention should be on the root cause of the RF interference: Antenna technology. It is becoming commonly known that all antennas in existence today are directional due to near field

5. Motorola commented on their experience in testing Motorola handsets utilizing the C63.19 rf (U-rating) and base band (UT-rating) standard in both a laboratory environment and in a research study at the June 2002 convention for Self Help for Hard of Hearing that was previously presented and summarized. Motorola recommends that industry need some time to develop a functionally equivalent measurement for Part 68.316 standard to be applicable to wireless handsets if the commission were to consider lifting the digital cell phone exemption.

MJI supports the parallel determination of field sources and the development of controlling standards after compliance with HAC Act requirements. MJI believes that all manufacturers have the ability to release a compliant, effective handset. Continued understanding of the internal mechanisms of interference patterns and the development of standards thereafter to improve internal changes will continue to support resolution of HAC in the long run.

6. Nokia commented that it has a proven record of providing accessibility solution for individuals with disabilities. Nokia recommends an ATIS technical incubator to evaluate and stabilize ANSI C63.19. Nokia suggest that mandating that all handsets be HAC could stifle innovation as well as unduly increase costs for all consumers. Nokia made several recommendations for improving ANSI C63.19 effectiveness and supports a peer review workshop as suggested by ANSI Subcommittee 8. Nokia points out that different designs, form factors and frequency bands will naturally have different RF emission characteristics and thus result in various levels of interference. Nokia performed testing under ANSI C63.19 for AMPS, 800, 850, 1900; RF Emissions for E-Field, H-Field; T-Coil signal amplitude, Signal/Noise, and Frequency Response. Nokia sells neck loops as a means to create compatibility to handsets.[Leo R. Fitzsimon, Director, Government and Industry Affairs Nokia Inc., April 10, 2003 HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]  
NOTE: Nokia did not quantify costs.

MJI supports this position and has seen the support Nokia gives to this issue. MJI believes that the HAC issue could be described as allowing all to "simply pick up the phone and say hello." This term would adequately relate the objective expressed by SHHH and others as well, provide a standard that Nokia has lead the world in. Unfortunately, the neck loop or other accessories do not support this goal of HAC.

7. Samsung pointed out that it was pleased that some of its cellular phones models were reported satisfactory in performance tests with certain hearing devices. Samsung pointed out that although exemptions do exists, Samsung designs its handsets mindful of the HAC Act and Section 255. Later, Samsung points out that their practice in conjunction with CDMA technology appears to promote T-Coil coupling capability. [Muzibul H. Khan, VP, Product Management and Engineering, Samsung Telecommunications America, HAC rulemaking

proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

MJI applauds Samsung for pointing out a basic ISO 9000 requirement (paraphrasing "when designing any consumer product, agency requirements must be addressed under Design Control). This is the basis that can implement changes within a manufacturing organization quickly and effectively.

8. Siemens and Cingular point out that, in order to achieve their recommended T-Coil performance, flexible design options are needed. Siemens pointed out that they achieved a U3 and U4 category [Ben G. Almond, VP Federal Regulatory Affairs, March 6, 2003 HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

MJI applauds Siemens for being the first to launch advanced antenna technology (in Europe) and looks forward to seeing Siemens' solutions.

9. Sprint Corporation points out that CDMA employs a variable, non-periodic form of switching, or "gating", resulting in less interference, but that the present implementation of 3G CDMA has no gating. Sprint points out that removal of the exemptions will not make hearing aids compatible because the interference will still be there. [Luisa L. Lancetti, Sprint Representative, HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

In the response by Motorola, it was recommended to review the Australian solution for HAC. MJI believes that although operating systems do create signal variation, the root cause is in the antenna technology.

10. MJI filed a petition for revision in FCC Part 24.232. This petition may be found in these records.

MJI believes this petition is required because the tolerance required by an isotropic radiator (a perfect theoretical sphere) requires that the RF signals radiate equally in order to remain within the tolerance of 2 dBm. This excludes directional antennas.

The HAC Consortium discussions included a number of representatives from the mobile phone industry. It was noted that federal regulation mandates omni-directional antennas, not voluntary industry standards. There is no present mandate or objection from this consortium to require isotropic radiators. By changing the regulation requirement from isotropic to power output (as is the case with Europe), directional antennas will be forthcoming and other regulations will address radiation toward the head.

11. Mark J. Sanford, Clinical Audiologist, Better Hearing Center, LLC. Pointed out that of the 47 hearing aids tested, all of the interference was resolved using MJI's

coupling. Given a proper ISO 9000 Engineering Change Request, the cost and rationales of implementation can be addressed properly. Antenna technology can change very fast with less than 5% of a phone's cost, an amount that many users would be happy to pay on behalf of better antenna technology.

3. The Hearing Industry Association (HIA) claims that advances have been made in the hearing industry that have mitigated RFI in hearing aids to some degree but not entirely. In comments to the FCC, the HIA stated: (Hearing Aids) have improved significantly in recent years, with resistance to interference increased in the order of 15 dB on average. HIA also states that the cellular telephone industry has been exploring innovative ways to address the issue such as the use of a special "patch" antenna that measures a 10-30 dB noise reduction in hearing aids. The HIA reports that various components of hearing aids have been modified to improve immunity to interference and the available shielding techniques and manufacturing problems have been and remain to be overcome. HIA discusses developments in wireless telephone handset antenna technology and demonstrates an antenna device that directs the signal away from the hearing aid, thereby significantly reducing interference to hearing aids. The HIA points out that both the HIA and the CTI made promises to reduce interference by 15 decibels and that the CTI has not done so [Loretta J. Garcia, Counsel for the Hearing Industries Association, February 15<sup>th</sup>, 2002, Ex Parte Presentation Report; WT Docket No. 01-309; Hearing Aid Compatible Telephones].

MJI's test of 47 hearing aids that are commonly found on the market, as selected by Mark Sanford, a leading audiologist, owner of Better Hearing Centers, author many related articles, and founder of several technology companies, indicates that good progress has been made, but that not all permutations (even with immune hearing aids) are covered by this progress. As Dave Woodbury (HIA) pointed out to MJI, "HIA is in favor of directionalizing antennas in resolution to this HAC issue."

4. American National Standards Institute (ANSI) concluded that some confusion exists about the state of current products being marketed under the ANSI C63.19 standard, and that due to this lack of clarity, a fragmentation exist along with a lack of objectivity by the presenters. Considering this, the ANSI recommends a technical workshop to review the adequacy of user interface to the standard. It was noted with interest, the suggestions by Cingular and Siemens that a technical incubator and steering committee be formed to guide in the final resolution of this issue. [Dan Hoolihan, Chair, ANSI ASC C63 SC8, March 21<sup>st</sup>, 2003 in response to HAC rulemaking proceeding in the matter of Section 68.4(a) of the Commission's Rules Governing Hearing Aid Compatible Telephones, WT Docket No. 01-309 RM-8658]

MJI, having studied the ANSI C63.19 standard, believes the work performed herein is exemplary, and there should exist a means to compile issues and complaints under a continuous improvement directive, thus driving this standard to fruition within the required time to support manufacturers' engineering change orders.

Vortis directional antenna prototype. Mark further points out that the solution should be embraced by industry and no further delays should be realized.

12. Tim Milam, President, Antenna Analysis Inc. pointed out that the directional antenna pattern created by MJI's prototype was evaluated and nulls were realized, which would eliminate any spurious interference with hearing aids. Mr. Milam points out that this is a terrific improvement in cellular communications for hearing aid users.

MJI believes that without a limited revocation of the HAC Act exemption, industry will continue to proceed at a slow rate of innovation. This, in our opinion, is unacceptable for the hearing impaired public, especially in light of existing technologies that could be devoted to the issue with a little cooperation among regulatory bodies and mobile phone manufacturers and carriers.

As pointed out by many; Accessibility:

- o Is good business
- o Creates better products
- o Is the moral and ethical and right thing to do
- o Full participation in society and the marketplace for all people is a dream of individuals, industries and governments

Myers Johnson, Inc., is a very small start up company seeking continued support from carriers, handset manufactures, hearing aid manufacturers and representatives, consumer groups, engineers, customers and investors. MJI looks forward toward a rapid, effective solution to the hearing aid compatibility issues.

James R. Johnson

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